



CKET NO.: FCI-2700/C7123

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: **Stephen L. Clark, et al.** Confirmation No.: **8116**
Serial No.: **09/886,432** Group Art Unit: **2833**
Filing Date: **June 21, 2001** Examiner: **Hien D. Vu**
For: **Power Connector**

DATE OF DEPOSIT: August 2, 2004

I HEREBY CERTIFY THAT THIS PAPER IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS FIRST CLASS MAIL, POSTAGE PREPAID, ON THE DATE INDICATED ABOVE AND IS ADDRESSED TO THE COMMISSIONER FOR PATENTS, P.O. BOX 1450, ALEXANDRIA, VA 22313-1450.

TYPED NAME: Andrew J. Hagerty
REGISTRATION NO.: 44,141

MS Appeal Brief - Patent
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

**APPEAL BRIEF TRANSMITTAL
PURSUANT TO 37 CFR § 1.192**

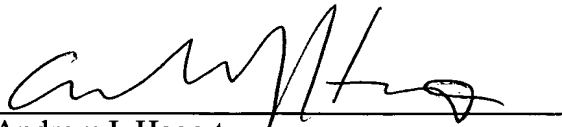
Transmitted herewith in triplicate is the APPEAL BRIEF in this application with respect to the Notice of Appeal received by The United States Patent and Trademark Office on **June 28, 2004**.

- ☐ Applicant(s) has previously claimed small entity status under 37 CFR § 1.27 .
- ☐ Applicant(s) by its/their undersigned attorney, claims small entity status under 37 CFR § 1.27 as:
- ☐ an Independent Inventor
 - ☐ a Small Business Concern
 - ☐ a Nonprofit Organization.
- ☐ Petition is hereby made under 37 CFR § 1.136(a) (fees: 37 CFR § 1.17(a)(1)-(4) to extend the time for response to the Office Action of _____ to and through comprising an extension of the shortened statutory period of _____ month(s).

	SMALL ENTITY		NOT SMALL ENTITY	
	RATE	FEE	RATE	FEE
<input checked="" type="checkbox"/> APPEAL BRIEF FEE	\$165	\$	\$330	\$330.00
<input type="checkbox"/> ONE MONTH EXTENSION OF TIME	\$55	\$	\$110	\$0
<input type="checkbox"/> TWO MONTH EXTENSION OF TIME	\$210	\$	\$420	\$0
<input type="checkbox"/> THREE MONTH EXTENSION OF TIME	\$475	\$	\$950	\$0
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<input type="checkbox"/> FIVE MONTH EXTENSION OF TIME	\$1005	\$	\$2010	\$0
<input type="checkbox"/> LESS ANY EXTENSION FEE ALREADY PAID	minus	(\$)	minus	(\$0)
TOTAL FEE DUE		\$0		\$330.00

- ☒ The Commissioner is hereby requested to grant an extension of time for the appropriate length of time, should one be necessary, in connection with this filing or any future filing submitted to the U.S. Patent and Trademark Office in the above-identified application during the pendency of this application. The Commissioner is further authorized to charge any fees related to any such extension of time to Deposit Account 23-3050. This sheet is provided in duplicate.
- ☒ A check in the amount of **\$330.00** is attached. Please charge any deficiency or credit any overpayment to Deposit Account No. 23-3050.
- ☐ Please charge Deposit Account No. 23-3050 in the amount of \$.00. This sheet is attached in duplicate.
- ☒ The Commissioner is hereby requested to grant an extension of time for the appropriate length of time, should one be necessary, in connection with this filing or any future filing submitted to the U.S. Patent and Trademark Office in the above-identified application during the pendency of this application. The Commissioner is further authorized to charge any fees related to any such extension of time to deposit account 23-3050. This sheet is provided in duplicate.

Date: August 2, 2004


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DOCKET NO.: FCI-2700/C7123

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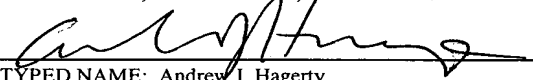


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TYPED NAME: Andrew J. Hagerty
REGISTRATION NO.: 44,141

Mail Stop Appeal-Brief Patents
Commissioner for Patents
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Alexandria, VA 22313-1450

Sir:

APPELLANT'S BRIEF PURSUANT TO 37 C.F.R. § 1.192

This brief is being filed in support of Appellant's appeal from the rejections of claims 58-67 dated March 5, 2004. A Notice of Appeal was filed on June 28, 2004.

1. REAL PARTY IN INTEREST

The inventors in the present application have assigned their interest to FCI AMERICAS TECHNOLOGY INC., f/k/a BERG TECHNOLOGY, INC. The original Assignment document, to BERG TECHNOLOGY, INC., was filed for recordation in the U.S. Patent and Trademark Office assignment system on April 8, 2003, and was recorded on April 14, 2003 at Reel 013951, Frame 0299.

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2. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

3. STATUS OF CLAIMS

A. Claims 58, 61-64, and 66 are currently pending in this application, and are reproduced in the Appendix. All of the pending claims were added during prosecution.

B. Claims 58 and 61-64 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement.

C. Claims 58, 63, and 64 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Davis et al. (U.S. Pat. No. 5,295,843).

D. Claim 66 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Japan 9-55245.

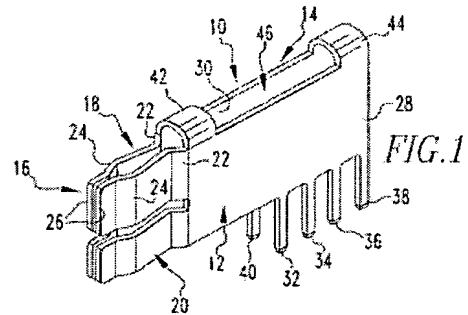
4. STATUS OF AMENDMENTS

In response to the Final Rejection dated March 5, 2004, Appellant proposed canceling claims 59-60 and 65-67. Regarding cancellation of claim 66, however, the response was ambiguous. The listing of claims included claim 66, but the remarks section stated that claims 59-60 and 65-67 were canceled, and that the rejection of claim 66 was obviated due to the cancellation. An Advisory Action was issued by the examiner on June 21, 2004. The Advisory Action did not indicate whether or not the proposed claim amendments (i.e., the cancellations) would be entered, and it did not provide a status of the claims. The undersigned representative called the examiner to find out if the proposed cancellations were indeed entered. A supplemental Advisory Action confirming the cancellation of claims 59-60, 65 and 67 was mailed on July 15, 2004. No additional amendments have been made. Accordingly, claims 58, 61-64, and 66, as originally presented, remain pending in the application. Appellant requests that claim 66 be formally cancelled without prejudice, and therefore, not be considered on appeal.

5. SUMMARY OF INVENTION

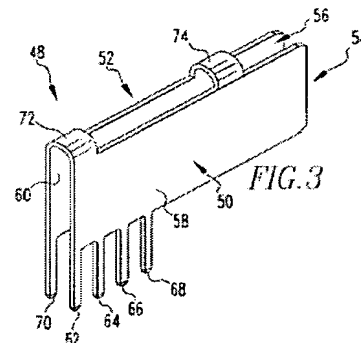
The present invention relates to electrical connectors and contacts suitable for transmitting power. The electrical connectors and contacts employ features that are intended to enhance dissipation of heat that is generated during power transmission.

Preferred contact embodiments of the present invention include two spaced apart sidewalls. This open, dual-mass configuration enhances heat dissipation through available surface area and airflow pathways, as discussed in connection with Fig. 1 reproduced at the right. Plug contact 10 includes spaced apart sidewalls 12 and 14, and upper and lower front projections 18, 20 defined by converging cantilevered beams. Sidewalls 12 and 14 include planar panels 28 and 30 connected by a front bridging element 42 and a rear bridging element 44.

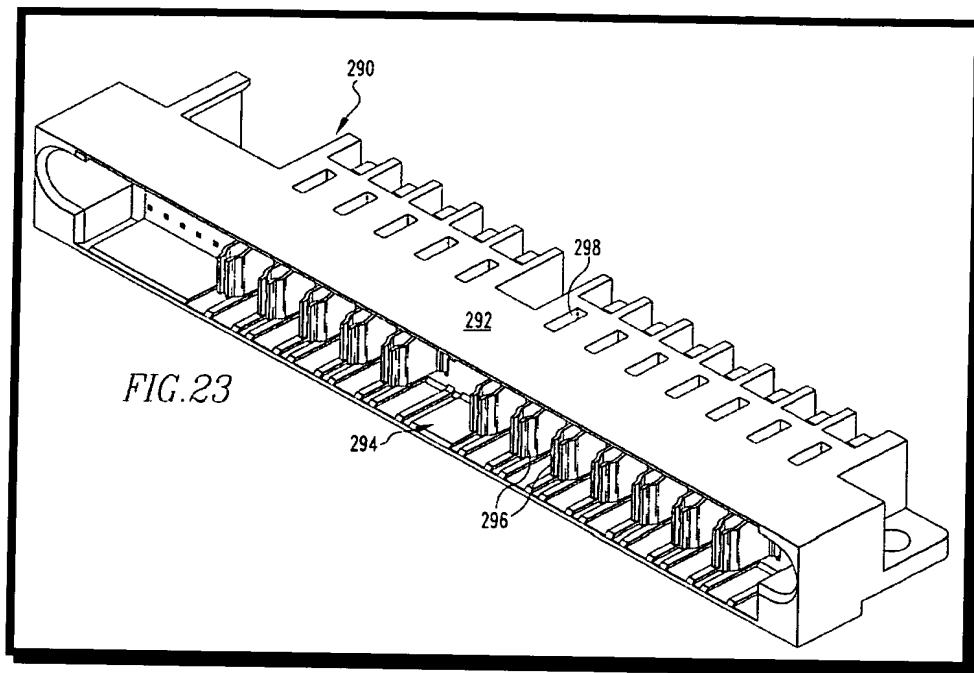


The two sidewalls/planar panels yield greater surface area for heat dissipation (principally by convection) as compared with conventional "single-mass" contacts (*see, e.g.*, page 1 of the specification, lines 16-31 and page 2, lines 16-18). A medial space 46, disposed between panels 28 and 30, defines an airflow path that also enhances heat dissipation (*see, e.g.*, page 2, lines 18-20 and page 5, line 19). Additionally, a heat dissipation opening is created between the two bridging elements 42 and 44, such that heat removed from the contact structure has an escape channel.

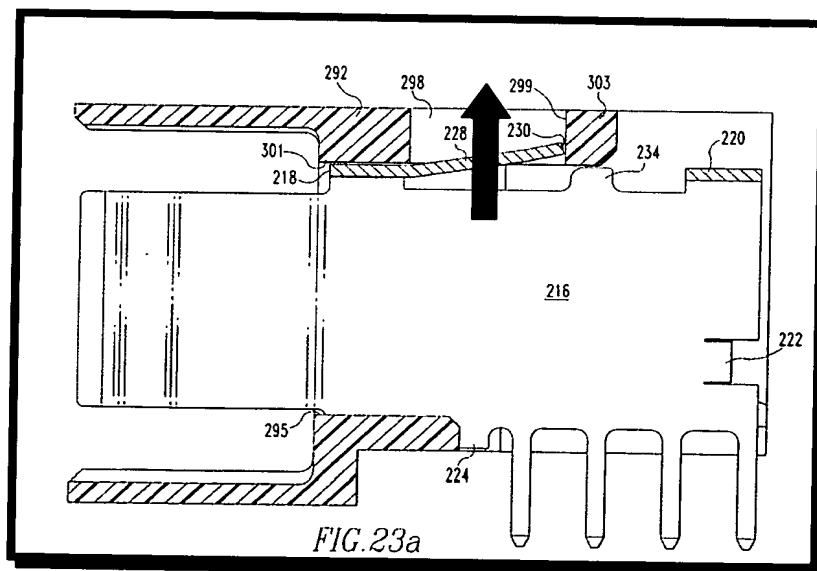
A mating receptacle power contact 48 is shown in Fig. 3, which is reproduced to the right. Contact 48 has similar structural features as compared to plug contact 10, but does not include cantilevered beams. The cantilevered beams of plug contact 10 are insertable into a plug receiving space 56 of receptacle contact 48.



Electrical connectors of the present invention comprise an insulative housing containing multiple power contacts, such as, for example, the contacts shown in Figs. 1 and 3 above. Similar to the individual power contacts, housing units of preferred connector embodiments employ design features that are intended to enhance heat dissipation. For example and as shown in Fig. 23 reproduced below, openings 298 can be formed in the top surface of the housing units. Openings 298 provide airflow passages for enhancing heat dissipation.



The heat dissipation design features of the individual contacts and the connector can communicate with each other to maximize heat dissipation. A cross-section of Fig. 23 is shown below.



A red arrow has been added to Fig. 23a to illustrate heat transfer from the contact to the connector's exterior. A heat dissipation opening in the contact, defined between the front and rear bridging elements, is in fluid communication with opening **298** in the connector housing. Although in cross-section it appears that the optional contact retention feature – tang **228** – blocks the heat transfer pathway shown by the red arrow, the retention feature does not span

the entire width of the medial space between opposing contact sidewalls, as can be seen from Fig. 17 reproduced at the right. Further, the specification states, on page 12, that “[o]penings **298** can also provide air flow passages for enhancing heat dissipation.”

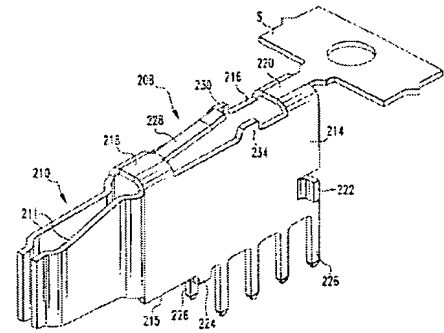
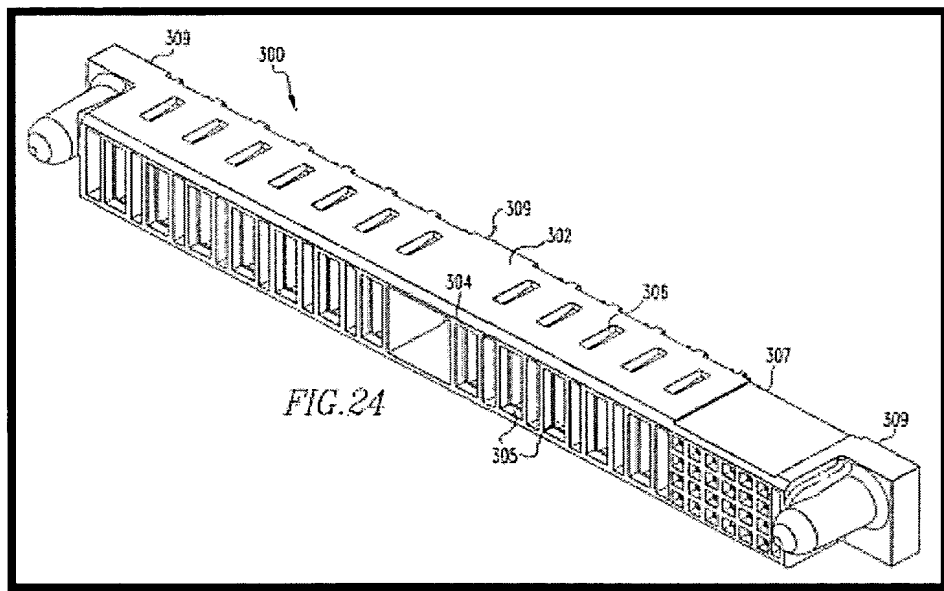


FIG. 17

Plug connector **290** (Fig. 23 above) is matable with receptacle connector **300** shown in Fig. 24, reproduced below. The cantilevered beams of each of the plug contacts are inserted into respective plug-receiving spaces of individual receptacle contacts in connector **300**. When fully inserted, the



cantilevered beams will generally reside underneath air flow passages 306 formed in the receptacle connector housing 302. In such a mated arrangement, heat can also flow between the cantilevered beams of the plug contacts and out of the mated connectors via openings 306.

6. ISSUES

- A. Whether claims 58 and 61-64 comply with 35 U.S.C. § 112, ¶1.
- B. Whether claims 58, 63, and 64 are patentably distinct over U.S. Pat. No.

5,295,843.

7. GROUPING OF CLAIMS

- A. Claims 58 and 61-64 stand or fall together.

B. Claim 66 stands alone if maintained on appeal.

8. REMARKS

A. Whether claims 58 and 61-64 comply with 35 U.S.C. § 112, ¶1

Claims 58 and 61-64 have been rejected under 35 U.S.C. § 112, ¶1, as allegedly failing to comply with the written description requirement. The examiner states that “the features ‘three open sides...opening therein’; [and] lines 9-15, the features ‘three open sides...plug contact’... were not disclosed in the specification ... are all confusing and not understood, and considered new matter.” *Final Rejection of March 5, 2004, at page 2.*

The Section 112 rejection should be reversed for at least the following reasons: 1) the specification need not describe the claimed subject matter in exactly the same terms as used in the claims; and 2) the figures and corresponding description reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed features.

I. **The Claim Terms Do Not Have To Be Duplicated In The Specification**

The Federal Circuit, in *All Dental Prodx*, acknowledged that a one-to-one match between the terms recited in the claims and the terms in the specification is not required to comply with the written description requirement, holding:

In order to comply with the written description requirement, the specification “need not describe the claimed subject matter in exactly the same terms as used in the claims; it must simply indicate to persons skilled in the art that as of the [filing] date the applicant had invented what is now claimed.” ... the failure of the specification to specifically mention a limitation that later appears in the claims is not a fatal one when one skilled in the art could recognize upon reading the specification that the new language reflects what the specification shows has been invented.

All Dental Prodx, LLC v. DMG Dental-Material Gesellschaft MBH, 309 F.3d 774 (Fed. Cir. 2002). Thus, if the examiner considers the claim terms new matter solely on the basis that the terms are not recited in the specification, then the rejection is improper and should be reversed. With respect to the examiner’s assertion that the claimed features are confusing and not understood, Appellant respectfully submits that a first paragraph rejection is not proper on such grounds.

II. The Claim Terms Are Supported By The Figures And Corresponding Description

The figures and corresponding description reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed features. Drawings in electro-mechanical cases typically dominate the disclosure; so much so, that examiners generally point to figures of the prior art to support their rejections. In fact, the examiner in the present case supported every final rejection by reference to a drawing. (*see Final Rejection of March 5, 2004, at pages 2-3*). Also quite telling, is the fact that the examiner states in his rejection, that Davis shows “a U-shaped conductive receptacle 6 and “a U-shaped conductive plug 6”, while the text of Davis is silent regarding a “U-shaped” contact.

Logically flowing from the importance of drawings in electro-mechanical cases, the Federal Circuit has held that the drawings included in an application can provide the written description support required under 35 U.S.C. § 112, ¶1. *See, e.g., Cooper Cameron Corp. v. Kvaerner Oilfield Products, Inc.*, 291 F.3d 1317, 1322 (Fed. Cir. 2002) (“In *Vas-Cath*, we held that ‘under proper circumstances, drawings alone may provide a written description of an invention as required by § 112.’”); *In re Hunter*, 1995 U.S. App. LEXIS, *14-15 (Fed. Cir. 1995) (“Depending on the facts of each particular case, one may satisfy the written description requirement using, for example, drawings, tables, equations, and formulas, alone or in combination.”).

Turning now to the claim features identified by the examiner as allegedly not having written description support, claim 58 recites, *inter alia*, “receptacle contact comprising a substantially U-shaped electrically conductive body defined by three open sides and three closed sides, at least one of the three closed sides having a receptacle contact heat dissipation opening therein;...plug contact comprising: i) a substantially U-shaped electrically conductive body defined by three open sides and three closed side, at least one of the three closed sides having a plug contact heat dissipation opening therein.”

Fig.3, reproduced above, illustrates one embodiment of a receptacle contact, in accordance with the present invention, comprising a U-shaped electrically conductive body defined by three open sides and three closed side. As shown and described, two of the three closed sides (the opposed sides of a U) are provided by opposed side walls **50** and **52** (*see* page 5), and the third closed side (connecting the opposed sides of the U) is provided by one or more bridging elements, for example, bridging elements **72** and **74** (*see* page 6) which connect side walls **50** and **52**. In the embodiment shown in Fig.3 (and other figures), an

opening is created by virtue of the two spaced apart bridging elements **72** and **74**. As referenced throughout the specification, improved heat dissipation is provided by contact and connector embodiments of the present invention through various product features and overall product configurations (*see, e.g.*, the abstract: “[t]he open structure of both the receptacle and plug contacts enhances heat dissipation”). The specification states that heat loss by convection can occur from interior surfaces of the side walls (*see, e.g.*, page 16). Such heat loss can then dissipate through the opening interposed between the two spaced apart bridging elements **72** and **74** in Fig.3. Thinking of a three-dimensional U-shaped body and looking at the receptacle contact shown in Fig.3 (reproduced above), the recited three open sides are defined by unconnected edges of side walls **50** and **52**. That is, the front, back and bottom of the receptacle contact shown in Fig.3 represent the three open sides. Plug contacts (*e.g.*, plug contact **10** shown in Fig. 1 and reproduced above) having similar features as discussed above, are likewise depicted in the figures and described in the specification.

Claims 61 and 62, directed to a receptacle contact embodiment and plug contact embodiment respectively, recite “at least two terminals extending from two of the three closed sides.” The figures clearly show at least two terminals extending from bottom edges of the opposed contact walls (or “two of the closed sides”). For example, terminals **32**, **34**, **36**, **38** and **40** each extend from one of the panels or closed sides of plug contact **10** (*see* Fig. 1 above and the specification on page 5, lines 14-15). Similarly, terminals **62**, **64**, **66**, **68** and **70** extend from one of the panels or closed sides of receptacle contact **48** (*see* Fig. 3 above and the specification on page 6, lines 7-8).

Claims 63 and 64 recite heat dissipation openings in connector housings that are in fluid communication with the heat dissipation openings in corresponding receptacle and plug contacts, disposed in the connector housings, as discussed in relation with claim 58 above. By way of example, Fig. 23 (reproduced above) shows a plug connector embodiment having an insulative housing comprising openings **298**. The specification states, on page 12, that “[o]penings **298** can also provide air flow passages for enhancing heat dissipation.” Fig. 24 (reproduced above) shows a receptacle connector embodiment having an insulative housing comprising similar openings **306**. And as can be seen in Fig. 23a (reproduced above), the plug contact heat dissipation opening (defined by the open region between the spaced apart bridging elements) is in fluid communication with openings **298** in the connector housing. This configuration allows for heat to dissipate from the interior surfaces of the contact sidewalls, up through the contact heat dissipation opening, and then out of the connector

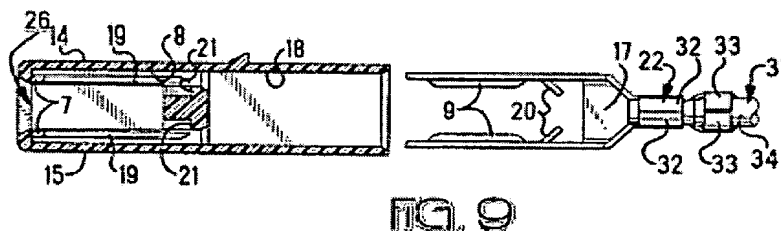
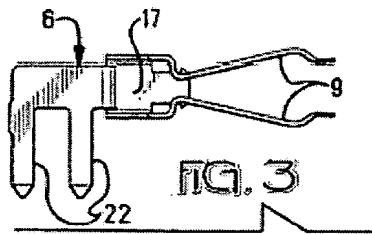
through the housing heat dissipation opening. Receptacle connector 300 has a similar configuration.

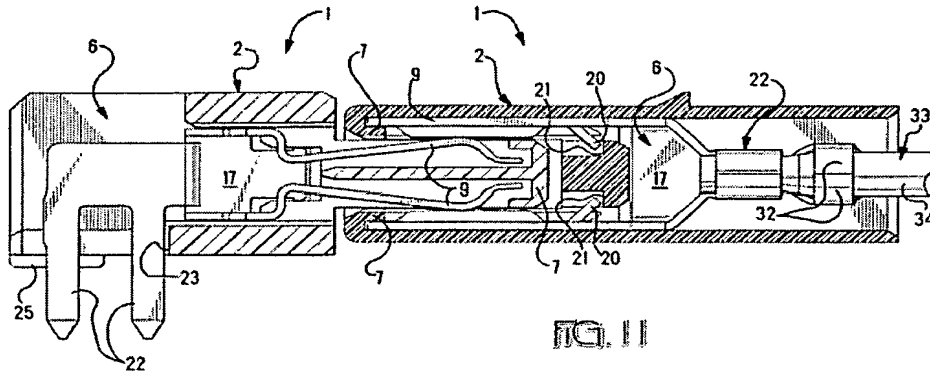
For the foregoing reasons, Appellant submits that the pending claims comply with the requirements under 35 U.S.C. § 112, ¶1.

B. Whether claims 58, 63, and 64 are patentably distinct over U.S. Pat. No. 5,295,843.

Claims 58, 63 and 64 have been rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Davis et al. The claims recite, *inter alia*, “receptacle contact comprising a substantially U-shaped electrically conductive body defined by three open sides and three closed sides, at least one of the three closed sides having a receptacle contact heat dissipation opening therein;...plug contact comprising: i) a substantially U-shaped electrically conductive body defined by three open sides and three closed side, at least one of the three closed sides having a plug contact heat dissipation opening therein.”

The rejection should be reversed since Davis does not teach or suggest these features. The examiner states that “Figs. 9 and 11 show ... a U-shaped conductive receptacle contact 6 with a pair of walls” and “fig 3 shows ... a U-shaped conductive plug with a pair of spaced walls.” Figures 3 (in pertinent part), 9, and 11 are reproduced below.





The pair of contact walls represent two closed sides of a U-shaped contact. Davis discloses structure connecting the pair of contact walls, which can be interpreted as the third closed side. But none of these closed sides have a heat dissipation opening. Therefore, Davis does not disclose each and every element of the rejected claims. The Section 102 rejection accordingly should be reversed.

Date: Aug 2, 2004

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APPENDIX

Claims 1-57 (Canceled).

58. (Previously presented) Matable electrical connectors having signal and power capabilities, comprising:

a) a receptacle connector comprising an insulative housing and a receptacle contact disposed therein, said receptacle contact comprising a substantially U-shaped electrically conductive body defined by three open sides and three closed sides, at least one of the three closed sides having a receptacle contact heat dissipation opening therein;

b) a plug connector comprising an insulative housing and a plug contact disposed therein, said plug contact comprising:

i) a substantially U-shaped electrically conductive body defined by three open sides and three closed sides, at least one of the three closed sides having a plug contact heat dissipation opening therein;

ii) only one solid deflectable beam extending from one of the three closed sides of the plug contact; and

iii) only one solid deflectable beam extending from another of the three closed sides of the plug contact.

Claims 59-60 (Canceled).

61. (Previously presented) The matable connectors of claim 58, wherein the receptacle contact further comprises at least two terminals extending from two of the three closed sides thereof.

62. (Previously presented) The matable connectors of claim 58, wherein the plug contact further comprises at least two terminals extending from two of the three closed sides thereof.

63. (Previously presented) The matable connectors of claim 58, wherein, the insulative housing of the receptacle connector further comprises a heat dissipation opening that is in fluid communication with the receptacle contact heat dissipation opening.

64. (Previously presented) The matable connectors of claim 58, wherein the insulative housing of the plug connector further comprises a housing heat dissipation opening that is in fluid communication with plug contact heat dissipation opening.

65. (Canceled).

66. (Previously presented) An electrical contact for power applications comprising:

a pair of opposed contact side walls defined by a first planar panel, a second planar panel, and a medial space between the first planar panel and the second planar panel;

an arcuate-shaped bridging element connecting respective top edges of the first and second planar panels;

a first plurality of terminals extending from a bottom edge of the first planar panel for mounting to a printed circuit structure; and

a second plurality of terminals, which are separate from said first plurality of terminals, extending from a bottom edge of the second planar panel for mounting to a printed circuit structure.

67. (Canceled).